



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,349	12/05/2000	TONY LARSSON	040000-845	6709
42015	7590	07/26/2005	EXAMINER	
POTOMAC PATENT GROUP, PLLC			NG, CHRISTINE Y	
P. O. BOX 270			ART UNIT	
FREDERICKSBURG, VA 22404			PAPER NUMBER	
			2663	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/729,349

Applicant(s)

LARSSON ET AL.

Examiner

Christine Ng

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 23-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 8 is objected to because of the following informalities:

Claim 8 depends on cancelled claim 7.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the individual nodes" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the memory means" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the individual nodes" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the individual nodes" in line 5. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2663

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The indicated allowability of claim 1 is withdrawn in view of the newly discovered reference(s) to U.S. Patent No. 6,691,173 to Morris in view of U.S. Patent No.

6,683,886 to Van der Tuijn et al. Rejections based on the newly cited reference(s) follow.

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,691,173 to Morris et al in view of U.S. Patent No. 6,683,886 to Van der Tuijn et al.

Referring to claim 1, Morris et al disclose in a digital communication system comprising:

Nodes, the nodes including a central node (Figure 1, M2) and at least two peripheral nodes (Figure 1, S3-S5), the central node comprising all means for the communication in the system and a memory (Figure 2, network resources table 130) for storing information related to the system itself and/or the individual nodes (Figure 1, S3-S5), the nodes each comprising a transmitter and a receiver (Figure 2, transceiver 106), and information only being directly transferred between the central node and each of the peripheral nodes.

Control means (internet management broadcast) in the central node for transferring information stored in the memory means related to the system and/or the individual nodes to every peripheral node. Based on advertisements from each of the slaves (Figure 1, S3-S5) in a piconet, the master (Figure 1, M2) of the piconet stores

information relating to slaves in a network resources table (Figure 2, 130). The master (Figure 1, M2) then issues an internet management broadcast to the slaves (Figure 1, S3-S5) describing the slaves. Refer to Column 3, line 49 to Column 4, line 8; Column 6, lines 15-60; and Column 7, line 32 to Column 8, line 19.

Wherein a first one of the nodes (Figure 1, M1) is a central node of a first group of the nodes (Figure 1, S1,S2,S4,S6,S7) and a second one of the nodes (Figure 1, M2) is a central node of a second group of nodes (Figure 1, S3-S5), the first and second nodes being different nodes, each node having first memory means (Figure 2, network resources table 130) for storing information relating to information on the first one of the nodes and on the nodes of the first group and second memory means (Figure 2, network resources table 130) for storing information relating to information on the second one of the nodes and on the nodes of the second group. Master nodes M1 and M2 compile tables in their network resources table 130, as shown in Tables I and II, respectively. Each table comprises information relating to how to access devices attached to its own nodes within its own piconet and devices attached to nodes in another piconet. The information is broadcasted by each of the nodes when they advertised their capabilities to the master nodes M1 and M2. Refer to Column 7, line 32 to Column 8, line 23.

Morris et al do not disclose that the first one of the nodes and the second one of the nodes are capable of being members in both the first and second group.

Van der Tuijn et al disclose in Figure 3 that that a master node can be a master of one piconet and a slave in another piconet. For example, one node 14 is a master of

piconet 12b and a slave of piconet 12c; and another node 14 is a master of piconet 12d and a slave of piconet 12c. Refer to Column 4, lines 25-56. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the first one of the nodes and the second one of the nodes are capable of being members in both the first and second group; the motivation being so that in case piconets overlap, they can still maintain their master-slave relationship.

Referring to claim 2, Morris et al disclose in Figure 2 that each peripheral node comprises means (network resources table 130) for storing the information. "Within slaves nodes, a network resources table 130 is updated in response to internet management broadcasts by the master node of the applicable piconet" (Column 6, lines 43-45).

Referring to claim 3, Morris et al disclose that the direct transferring of information is made wireless, in particular using short range radio waves. The invention of Morris et al is implemented using the Bluetooth wireless communications protocol, which uses short range radio waves. Refer to Column 1, lines 18-25 and Column 3, lines 14-22.

Referring to claim 4, Morris et al disclose in Figure 1 that the controls means (internet management broadcast) in the central node (M2) are arranged to transfer address information comprising at least one address of each of the peripheral nodes (Elements S3-S5). Each slave node "transmits an advertisement identifying its address and the services it offers" (Column 3, lines 56-57). The advertisements of all slaves are

compiled in an internet management broadcast by the master node. Refer to Column 4, lines 3-8.

Referring to claim 5, Morris et al disclose in Figure 1 that the control means (internet management broadcast) in the central node (M2) are arranged to transfer compatibility related information. Each slave node "transmits an advertisement identifying its address and the services it offers" (Column 3, lines 56-57). Services include "the capability of a given slave node to relay message information to and from one or more outside networks" and "other networks within which the slave node is capable of communication and the services offered by each" (Column 3, line 63 to Column 4, line 2). The advertisements of all slaves are compiled in an internet management broadcast by the master node. Refer to Column 4, lines 3-8.

Referring to claim 6, Morris et al disclose that the system is a Bluetooth piconet. The invention of Morris et al is implemented using the Bluetooth wireless communications protocol, which "contemplates the grouping of physically proximate wireless nodes into piconets". Refer to Column 3, lines 14-22.

7. The indicated allowability of claim 8 is withdrawn in view of the newly discovered reference(s) to U.S. Patent No. 6,691,173 to Morris in view of U.S. Patent No. 6,683,886 to Van der Tuijn et al, and in further view of U.S. Patent No. 5,901,362 to Cheung et al. Rejections based on the newly cited reference(s) follow.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,691,173 by Morris et al in view of U.S. Patent No. 6,683,886 to Van der Tuijn et al, and in further view of U.S. Patent No. 5,901,362 to Cheung et al.

Morris et al disclose in Figure 2 that the nodes have control units (CPU 114) connected to the transmitters and receivers (transceiver 106). Refer to Column 6, lines 40-42.

However, Morris et al do not disclose that the control unit transfers to a central node information on a change of a node to being or to finishing being a member in both the first and second groups.

Cheung et al disclose in Figure 4 a wireless node A that moves from position 200 in AP1 to position 210, which is outside of AP1 and AP2. When a node roams, it may roam out of range from all APs in its AP table. Since node A moves out of the range covered by AP1, it ceases to consider itself associated with AP1 so it cannot communicate with AP1 anymore. At position 210, node 4 is also not yet in communication with AP2. Furthermore, a node sends an association request to the central node (AP) when it roams into the area covered by that AP. Each master node (AP1, AP2) updates its BSS table, which contains all wireless nodes which it is associated with. Refer to Column 8, lines 21-40 and Column 10, line 18 to Column 11, line 5. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the control unit transfers to a central node information on a change of a node to being or to finishing being a member in both the first and second groups; the motivation being so that the central node will know which nodes are within its service area to facilitate data communication in the piconet.

9. The indicated allowability of claims 23-25 is withdrawn in view of the newly discovered reference(s) to U.S. Patent No. 6,691,173 to Morris et al.



10. Claims 23-25 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,691,173 to Morris et al.

Referring to claim 23, refer to the rejection of claim 1. Furthermore, Morris et al disclose in Figure 1 that the group of first nodes (piconet 10) and the group of second nodes (piconet 20) have a node (S4) in common, this node being a forwarding node, characterized in that a node can change from being a forwarding node to not being a forwarding node, or vice versa. Refer to Column 3, lines 40-48. Node S4 can change from being a forwarding to not being a forwarding node. For example, if node S4 "were to determine it would soon move out of range of master node M1 and was currently supporting a connection to the second piconet (e.g., to node S5) for node S6, it would attempt to notify node S6 of its imminent department from the first piconet 10" (Column 5, lines 22-32). Therefore, node S4 changes from being a forwarding node for S6 to not being a forwarding node since it moves out of the range of M1.

Morris et al do not specifically disclose that when a node changes from being a forwarding node to not being a forwarding node, or vice versa, a message is sent to all the nodes in the first and second groups except the node itself.

However, Morris et al disclose that when a node changes status, it must notify all nodes of the first and second groups, except itself, since it already knows that it is changing status. For example, when a node changes from a master node to a slave node, it issues a last internet management broadcast identifying the address of the new master. All nodes of the first and second groups will directly or indirectly be notified of the new master node through internet management broadcasts. Refer to Column 3, line

49 to Column 4, line 8; Column 4, line 66 to Column 5, line 6; and Column 7, line 32 to Column 8, line 22. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that when a node changes from being a forwarding node to not being a forwarding node, or vice versa, a message is sent to all the nodes in the first and second groups except the node itself; the motivation being that all nodes must be informed of any network change in order for the nodes to determine paths to destinations in other piconets.

Referring to claim 24, Morris et al disclose that the message is sent from the master nodes of the first and second groups. If for example, a node loses communication with a gateway node S4, it notifies the master node, which then notifies other nodes by choosing an alternate gateway node. Refer to Column 5, lines 39-46.

Referring to claim 25, Morris et al disclose that the message is sent from the node itself. If for example, node S4 will soon move out of the range of master node M1, it would attempt to notify all nodes that it was serving as a gateway for of its departure. Refer to Column 5, lines 22-32.

11. The indicated allowability of claim 26 is withdrawn in view of the newly discovered reference(s) to U.S. Patent No. 6,691,173 to Morris in view of U.S. Patent No. 5,901,362 to Cheung et al.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,691,173 to Morris et al in view of U.S. Patent No. 5,901,362 to Cheung et al.

Morris et al disclose in Figure 1 that wherein before sending the message,

Art Unit: 2663

information of the change of forwarding node (S4) status in the node is transferred from the node to the master node (M1) of the first group (piconet 10). When a gateway node S4 determines that it will move out of the range of M1, it notifies node S6 of its departure since it serves as a gateway for node S6 to node S5. There is no direct connection between node S4 and node S6 so the notification must be transferred to the master node M1. Refer to Column 1, lines 28-32 and Column 5, lines 27-32.

However, Morris et al do not disclose that the message is sent to the master node of the second group, provided that the node is not the master node of the second group.

Cheung et al disclose in Figure 4 that when a node roams, it may roam out of range from all APs in its AP table and is disconnected from the system until it comes within range of another AP. Each AP must be informed that the node has moved out of its range so that the AP can update its BSS table, which lists all wireless nodes which it is associated with. This only applies to wireless nodes, and not the master nodes (AP1, AP2), since wireless nodes become disassociated with their master nodes. Refer to Column 8, lines 21-40 and Column 10, lines 29-47. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the message is sent to the master node of the second group, provided that the node is not the master node of the second group; the motivation being so that all master nodes of all piconets can be notified of a node that has left their service area in order to facilitate data communication in the piconet.


**Conclusion**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng CW  
July 8, 2005

  
RICKY NGO  
PRIMARY EXAMINER

7/12/05